

**DEPARTMENT OF TRANSPORTATION****DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:**Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-003480**Date Inspected:** 08-Jul-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 1400**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 430**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai China

<b>CWI Name:</b>	Wang Nan / Zhu Zhong Hai			<b>CWI Present:</b>	<b>Yes</b>	<b>No</b>	
<b>Inspected CWI report:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Rod Oven in Use:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
<b>Electrode to specification:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Weld Procedures Followed:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
<b>Qualified Welders:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Verified Joint Fit-up:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
<b>Approved Drawings:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Approved WPS:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
				<b>Delayed / Cancelled:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
<b>Bridge No:</b>	34-0006			<b>Component:</b>	Tower / OBG		

**Summary of Items Observed:**

Tower shop Bay 3 Dec Panel repairs

This Quality Assurance (QA) inspector arrived at ZPMC in Shanghai China for observation of Orthotropic Bridge Girders (OBG) and Self Anchored Suspension (SAS) Bridge. The QA Inspector randomly observed ZPMC personnel performing grinding and welding of repairs of Orthotropic Box Girder (OBG) deck panel Partial Joint Penetration (PJP) welds. During initial observations it was noted that twenty-one (21 ea) deck panels are inside the shop. This QA inspector along with ZPMC and ABF perform two initial visual inspections on deck panels DP-076-001 and DP073-001 which was mutually agreed upon for the repairs. This QA inspector also observed ZPMC performing repair work that was in-process on deck panels DP066-001 DP026-001 and DP006-001 by ZPMC personnel. Deck panel DP006-001 was in process for UT repairs on weld 3 at Y locations 7240 and 6625. This QA inspector was informed by ABF that ZPMC was only performing the excavations and that no welding would take place for these locations Certified Welding Inspector for ZPMC Wang Nan was present at this location for the monitoring of the deck repairs and inspection. Also noted in bay 3 to monitor deck panel repairs were ABF personnel Kevin Chen, Wang Zhong Yuan and Ding Bao Hua.

89m Mock-up Submittal SUB101R2

This QA inspector was called by ZPMC QC personnel Ken Zhang to be informed that ZPMC had completed the welding of Lug plate to Diaphragm for the 89m mock up and was starting the controlled cool down. Upon arrival at the 89m mock up it was noted that ZPMC had placed insulation at the weld area and the heater blocks were on. This QA inspector spoke with ABF personnel Jeff Chan and Yang Yiheng and was informed of the following information; ZPMC had welder Li Mengqian performing the welding operation using the SMAW process under WPS-B-T-4113-2 and preheat and interpass temperatures were within the required ranges for welding. It was also noted that ABF had witnessed the root pass and Magnetic Particle (MT) inspection by ZPMC and had accepted

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## WELDING INSPECTION REPORT

( Continued Page 2 of 3 )

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this weld. ZPMC then proceeded to weld the interpass and cover passes for this location through competition. Once the weld was completed ABF and ZPMC used a temperature indicating marker (Temp-Stik) of 180°C to start the controlled cool process at 1653 hrs. During the time this QA inspector was at this location the following readings taken by ZPMC QC inspector. The locations for the low readings were at the bottom 1/3 of the weldment approximately 100 to 150 mm from the bottom as follows;

Bottom 1/3 of weldment;

1658 hrs – 140°C  
1728 hrs – 130°C  
1753 hrs – 127°C  
1828 hrs – 108°C  
1858 hrs – 97°C  
1928 hrs – 87°C  
1958 hrs – 65°C  
2028 hrs – 58°C

Top 2/3 of weldments;

1658 hrs – 180°C  
1728 hrs – 175°C  
1753 hrs – 147°C

The locations for the low readings were at the bottom 1/3 of the weldment approximately 100 to 150 mm from the bottom. The top 2/3 of the weldment were as follows 1728 hrs – 180°C and 1753 hrs – 147°C. With the bottom 1/3 it does show a drop of more than 40°C in a one period which is beyond the requirements of the approved submittal. ZPMC's QC inspector was onsite to perform the monitoring. The established ambient temperature was approximately 30°C taken at the 89m mock up.

PMT for production date 7-9-08

DP358-001 & DP088-001

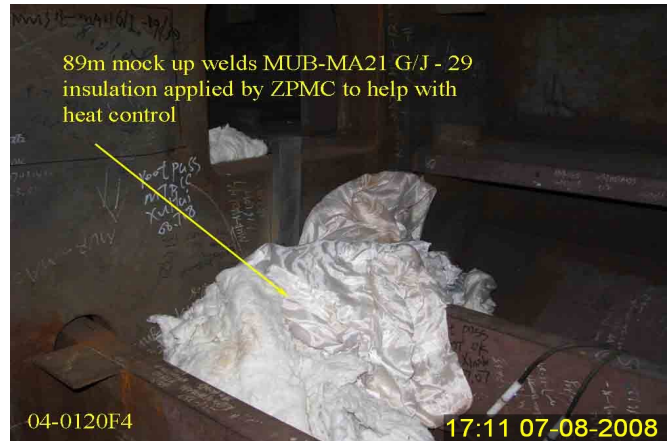
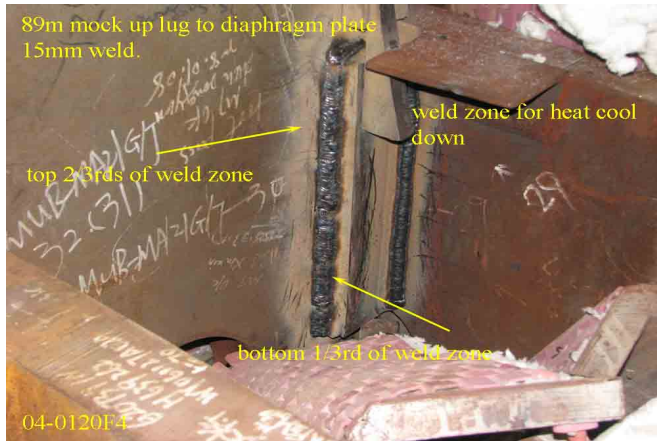
This QA inspector observed ZPMC weld a Production Monitoring Test (PMT) for deck plate DP358-001 and DP088-001 at gantry-1. Upon completion of the Submerged Arc Welding (SAW) process for PMT-1 ZPMC accepted the PMT for visual inspection which was verified by this QA inspector and ABF personnel. ZPMC then performed ultrasonic testing on the PMT and informed this QA inspector that the depth of penetration was acceptable per the criteria. This QA inspector then identified and marked the areas to be cut for the macro etches upon completion of the macros ZPMC, ABF and this QA inspector evaluated the macros and found no rejectable indications per the criteria. Documentation and records for this PMT was distributed to all parties involved for this PMT this date.

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## WELDING INSPECTION REPORT

( Continued Page 3 of 3 )

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### Summary of Conversations:

As noted in contents above.

### Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Joshua Ishibashi , China- 1-376-471-0411, who represents the Office of Structural Materials for your project.

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<b>Inspected By:</b>	Riley, Ken	Quality Assurance Inspector
<b>Reviewed By:</b>	Carreon, Albert	QA Reviewer

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